

# AVIATION

*The Oldest American Aeronautical Magazine*

FEBRUARY 25, 1924

Issued Weekly

PRICE 10 CENTS



Walter E. Lees taking delivery of his Lincoln-Standard semi-cabin plane (Wright E2 engine)

VOLUME  
XVI

## SPECIAL FEATURES

NUMBER  
8

DOUGLAS WORLD CRUISER DESCRIBED  
SHAKE UP OF PERSONNEL AT LAKEHURST  
NAVAL ARCTIC AIR EXPEDITION POSTPONED  
PROGRESS TOWARD 1000 HP. AIRCRAFT ENGINES

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Published every Monday

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THE GARDNER, MOFFAT COMPANY, Inc., Publishers

GENERAL AND EDITORIAL ROOMS, 225 FOURTH AVENUE, NEW YORK

Publications Office  
HIGHLAND, N. Y.

Subscription price: Four dollars per year. Single copies 15c. Outside Canada, five dollars. Foreign, six dollars a year. Copyright 1924, by the Gardner, Moffat Company, Inc.

Issued every Monday. Forms close ten days previously, unless on second-class matter Nov. 25, 1923, at the Post Office at Highland, N. Y., under act of March 3, 1879.

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# HIGH POWER

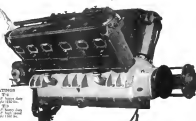
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Vol. XVI

FEBRUARY 25, 1924

No. 8

## Foreign Racing Entries

LETTERS from Europe indicate that complications regarding entries for the races that are to be held in this country this year. The fact that our Air Service have stood sponsors for these races, whereas in Europe the constructors bear the expense, brings up the question of the possibility of entries competing with a government without undue expense. The second question being discussed is the propriety of foreign entries having the expenses paid by the U. S. A. to meet over and compete with our own Army and Navy Air Services.

Taking up the first point, the sponsoring of racing by our government, there is no doubt provided for this in the Constitution, where officers have always been identified with all efforts to improve the breeding of the horse. While it is true that the government has not engaged in horse racing, it has fostered the spirit of contest by encouraging officers to enter the horse shows. In aviation it is somewhat different. The Service has wanted speed and more speed, and the mass of the last two years have brought the results desired. But when it comes to international air races a new problem is encountered. Racing between governments would probably establish a precedent that might lead to future complications. The Shinkensley Cup situation is a case in point. Our Naval Air Service financed the sending of airplanes and pilots to England, and they were successful in lifting the Cup. Now the private foreign contractor is invited to finance a race here to compete with our government services. We also hear that government entries for the Shinkensley Cup were not accepted and that only the entries of contractors would be considered.

The other difficulty comes as a result of the generous offer of St. Louis last year to underwrite the expense of foreign contestants. The English attitude is well expressed by one of our English correspondents. "Our people took the attitude, and I think justifiably, that if they could not afford to meet for their own they were not going to race at anybody else's expense. To be quite frank, one of our leading contractors told me that it did not seem right to send a machine over to the States at the expense of America and to give the Americans the chance of saying after it was beaten that we could not even put up a show when somebody else paid for it." All of which sounds reasonable.

In France, on the other hand, the constructors are interested in the possible recovery of the offer of St. Louis, by Dayton, this year. They appear to be anxious to race for racing sake regardless of the technicians. If the American constructors were left to defend the money money that we now hold, without government support, they would undoubtedly be inclined to expend the large amount required to build and enter racing aircraft as European designers.

These two points could receive the attention of the F.A.J.

at this time with the excellent effect of clearing up the international racing situation for all time. Our feeling is that government air services should not be permitted to compete with private contractors and that records made by government aircraft should be recognized separately.

The matter of financing expenses is easily solved and should offer no great difficulties. The fact that the St. Louis Race attracted a crowd that paid approximately \$500,000 would seem to justify the payment of expenses of contractors. But here again, the entry of government races that have a financial side complicates the decision. It will require a careful and complete investigation of all the viewpoints to reach a clear solution, but it is one that should be given our attention by the international organizations in charge of the quest of flying throughout the world.

## The Shemondosh

THE action of President Coolidge in putting the responsibility for the North Pole flight of the Shemondosh up to Congress is an issue with less than clear thinking. Congress is in a position of its prerogatives as is the Executive branch of the Government. This was shown when the Air Mail appropriation was thrown out of the Appropriations Bill on a point of order, the Congressmen thinking that there was no authorization in law for the Air Mail.

Having greater regard for the opinions of technical experts than for those who have only seen in the North Pole venture a scientific expedition of value, or those who have been expressing the great probability the whole enterprise has attracted, we have had to take a different view of the trip. When we consider the expense of the construction of a craft for long trips in which the lives of our officers are risked, no consideration seems to us as important as that of obtaining a certificate of opinion. The lift of the Shemondosh when filled with helium, is not great enough, so believe it will be found, to give us adequate reserve margin. As has been pointed out, the use of helium decreases the emergency landing range of the aircraft approximately one half, a most serious factor when exploring unknown regions with a single base. The excessive expenses of the French Navy to use the Dornier for long distance trips without suitable landing places in case of emergency, led to the novel disaster. If the workings of her commanding officer had been checked, the Dornier would probably still be a part of the French Navy instead of lying on the bottom of the sea.

Should Congress decide to go ahead with the projected Arctic air expedition, we urge that competent technical men be added upon to give expert testimony on the project, unassailable by any considerations of expediency.

# Progress Toward 1000 Hp. Aircraft Engines

By GLENN D. ANGLE

In Charge of Airplane Engine Group, Engineering Division, Air Service

The effectiveness of any military airplane for bombing operations can be measured by its useful load. Inside the nose and its equipment, useful loading consists of bombs and fuel in proportions determined by the radius and nature of the bombing operation. The amount of useful load, say given air speed, depends upon the available horsepower. The more of that necessary to lift the airplane itself, hence the turn efficiency can be reduced in relation therewith, and we can at once understand the military necessity of increasing the power output. Undoubtedly, bombing missions, with a few simple exceptions, can be converted into passenger and freight carrying ships, therefore the development of high-powered airplanes is also important in our progress toward commercial air travel.

## Advantages of Single Engine

In the choice of power plants, the single engine is known to have certain advantages over multi-engine installations. Perhaps the most important of these is the reduction of parasite resistance. The large nacelles, when installed as a factor, present little or no increase in the useful horsepower required for the airplane because, while the nacelles containing the engines act as interference installations add directly to the resistance of forward motion.

Separate nacelles are required for each engine, therefore the duties of the pilot become more difficult as we increase the number of engines to be used. Remote controls to engines installed in the wings are not always simple to adjust and maintain in satisfactory operating condition. Moreover, duplication of parts actually reflects a weight increase, and to mention the increased weight of the structure necessary to support the engines at these remote positions. It is perhaps safe to say that an undivided attention can be built as tight as one with a single engine, whereas, of course, that the same power at being delivered and furthermore that a single large engine can be designed heavier per unit of power output, with a view of greatly increasing its reliability, so that the airplane with the engine installed need be no more than one with two or three exceedingly light power plants.

The difference in opinion as to the single versus multi-engine installation have been based almost entirely on the question of reliability. Attention has just been directed to the fact that the large engine can be made more reliable without affecting an increase of total weight. Furthermore, it has been pointed out by test that a 100-horsepower engine can satisfactorily with only one change of bearing. We need not conclude, therefore, that we have no greater reliability, on the supposition of engine failure, unless three or more equally reliable engines are employed.

## Who Built the Biggest Engine

Apparently the development of large power units for both military and commercial aircraft is justified and the question now arises as to what has been done along this line by the Army Air Service. Numerous reports have come from abroad regarding the European development of large bombing machines, but very little information has been circulated concerning similar developments at home. As a matter of fact, our Air Service has been actively engaged in the design and development of large bombing engines ever since the year following the meeting of the Avrocar. That results have been obtained, in keeping with the efforts regarding this, can be judged by the reader from the following brief comments on the various engines of 600 or more horsepower that have been designed and constructed to date.

Records show that our only thirteen airplane engines, rated not less than 600 hp., have actually been designed and built. Seven are of French design, three are British, two are American, and one is Dutch. As far as can be determined

from the information available, only six of these engines have required any degree of development. These engines are of British design, and the other three were produced in France, Italy, and the U. S. A.

In the late war, the Germans were unfortunately situated so that they could neither borrow aids nor combine their own with their Allies and therefore, by comparison, their flight. On the other hand, the Allies, in order to be able to retaliate for their barbarous acts, had to fly much greater distances before reaching German territory. This situation was largely left, and the necessity for the development of larger engines was perfectly obvious.

## The Rolls-Royce Condor

Mecon, Rolls-Royce, who are well-known British automobile and airplane engine manufacturers, were perhaps the first in England to be assigned the task of designing and building a bombing airplane engine. The results of their efforts, the



Model 871A 700 hp. aircraft engine, designed and built by the Engineering Division, Air Service

"Condor," would no doubt have been ordered produced in quantities but for the untimely death of the designer. This engine is a twelve-cylinder Vee type of approximately 2100 cc. in piston displacement. The propeller is driven through reduction gears, and the dry weight is reported to be 1,170 lb. The engine was originally rated 600 hp. at 1800 r.p.m., but the latest reports show that 600 hp. can be readily developed at 1600 r.p.m. At the latter rating, a reasonable figure of 2,060 lb. is obtained. Combined development on this engine has finally brought it to a point of refinement equal possibly to any other of its pretender class in Europe.

## An Early Pioneer: Fiat

Previous to the completion of the first Rolls-Royce "Condor," in fact about June 1917, the Fiat A14 engine made its appearance in Italy. This engine was also a twelve-cylinder Vee type but had provision for mounting the propeller directly upon the crankshaft instead of driving it at a reduced speed through gears. It was larger than the "Condor," having a piston displacement of 2450 cc. and was reported to weigh 2,740 lb. The Fiat A14 engine is normally rated 600 hp. at 2500 r.p.m., or 548 hp. at 1800 r.p.m., but is reported to actually deliver better than 600 hp. at 1800 r.p.m. Although this engine is rather bulky and heavy for the power delivered, and may

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not be inherently well suited for the requirements, nevertheless it is the greatest contribution from Italy to the big engine class and has the distinction of being the first engine of its size ever flown. Doubtless, more hours have been flown with A14 engines than any other of over 800 hp.

## Numerous Big Engines in France

The latest progress of bombing engine development was indicated in France. Altogether six types were represented. The Renault and Peugeot establishments confined their efforts to the twelve-cylinder Vee form with direct-driven propellers. Both engines were expected to deliver 600 hp., although the latter was actually rated at 500 hp. The Renault had 2350 cc. in piston displacement and was reported to deliver 600 hp. at 2000 r.p.m. The engine weighed 1,140 lb., or 2,110 lb. at normal rating, and 1,780 lb. at the engine output. The piston displacement of the Peugeot A14 engine was 2500 cc. and its normal speed 1600 r.p.m. The reported weight—1,270 lb.—gives a value of 2,110 lb. Very little is known of the merits or adaptability of either of these engines. The experimental eight-cylinder Vee type of 2015 cc. in piston displacement was built by Lorraine and Dietrich. This engine was rated 700 hp. at 1600 r.p.m., and was reported to weigh 1,240 lb., or 1,810 lb. per rated hp. Claims for this covering engine are based, no doubt, upon the improved performance



Fiat A14 650 hp. engine, produced in 1917, which was the pioneer of the high-powered aircraft engine

requested with the special means provided for cooling the cylinders. There are reasons for doubting the success of the claims, those being further substantiated by the fact that no reports have been received recently regarding further developments.

The pioneer radial-engine builder, Ansaldo, designed and constructed a twenty-cylinder water-cooled radial engine of 2615 cc. in piston displacement, rated at 600 hp. This engine was said to develop 650 hp. at 2700 r.p.m., and 700 hp. at maximum speed. The objection against it as rated engines applied to this design, namely, that resistance to low speed proportion to the power delivered. No information is at present available with reference to the further development of the engine.

## The 1000 Hp. Lorraine-Dietrich

The Packard-Lorraine Automobile Works of Paris have constructed a sixteen-cylinder engine of the double Vee type, which is composed of four rows of four cylinders each, with an in-line angle of forty-five degrees between adjacent rows. The engine has a piston displacement of 2740 cc. and is reported to develop 650 hp. at 1600 r.p.m., and 980 hp. at 2500 r.p.m. It is said to weigh 3475 lb., or 500 lb. per rated hp. Considerable trouble was experienced during the

short preliminary tests of this engine and it is possible that the project has been abandoned.

The largest engine ever designed in France is the Lorraine-Dietrich twenty-four cylinder W type composed of three rows of eight cylinders, with the two outer rows set at sixty degrees to the outer vertical row of cylinders. The piston displacement is 3640 cc. and the engine is estimated to deliver 1000 hp. at 2000 r.p.m. The weight is optimistically estimated at 1870 lb., or 1,870 lb./hp. The work on the design of this engine was commenced prior to the Armistice, but it is doubtful whether it will be completed. This engine is being developed in collaboration with the International Exhibition in Paris during December, 1924, it being in reality a double form of their twelve-cylinder W type, rated at 980 hp. In the light of some of the knowledge on the requirements of bombing engines, this design does not appear to combine the best characteristics.

The Farness engine—twelve-cylinder W type engine of 800 hp. is evidently the only one of the large French designs that is at present under serious construction. This engine is extremely heavy—according to reports it weighs 2050 lb., or 2,440 lb./hp.—and for this reason alone the extent of its usefulness is rather limited. It is interesting, however, to note that the design of this engine was based on the largest weight per horsepower should survive. The Farness engine was designed after the war and, as a result, no doubt, incorporates later ideas and more closely meets the requirements as regards the design. It is provided with a reduction gear, but the propeller which can be supplied in any case of four ratio is desired.

## The Napier Cub

Since the war, two other British firms have designed and built engines of large output. The Napier company has a twelve-cylinder Vee type engine known as the "Cub." This engine has a piston displacement of 4835 cc. in, being the largest of any on record. It is rated 850 hp. at 1400 r.p.m., and has a cylinder bore giving a normal speed of 1,400 r.p.m. in the propeller. This weight is reported to be 1920 lb., or 2,210 lb./hp. This engine is intended for light-aircraft craft and consequently cannot be directly compared with some of the other engines described.

Prior to the greatest contribution to large engine development in England is the "Cub," which was designed and built by H. Napier and Son, Ltd. This engine is a sixteen-cylinder Vee type employing reduction gears for driving the propeller. The engine is composed of two rows of eight cylinders, the form of an irregular cross, the angle between the two upper rows being less than the angle between the two lower rows. The piston displacement is 5681 cc. in, and the rated brake horsepower is 850 hp. at 1400 r.p.m. The weight per unit is 2,290 lb., or 2,320 lb. per rated hp. Six of these engines were ordered by the British Air Ministry, but it is understood that no far a 56-hp. endurance test has not been completed owing to certain mechanical troubles. The engine has been subjected to preliminary test runs have been made showing that the power output is nearly the amount expected, and one of these engines has been installed in an Alderley "beast" plane. It is anticipated that the engine will be put into service after a number of trial flights and the completion of its endurance tests.

## American Developments

The only large engine designed and constructed in this country during the war was the Deutsches Motoren A. 14, a sixteen-cylinder Vee type built with either direct or geared drive. The engine is rated at 600 hp. at 1600 r.p.m., the engine having a piston displacement of 2500 cc. in. The direct drive engine weighed 2500 lb., which is rather low considering the power output. However, on full power readings were made, and the engine failed after the Armistice gave considerable trouble and finally failed before the runs were completed. This engine was entirely unsuited for aircraft installation on account of its length, nevertheless, it was built and has been successful.

The U. S. Air Service was therefore without any reliable engine of over 400 hp. at the end of the war. During the summer of 1918, the Curtiss-Wright Co. designed and built a sixteen-cylinder W type of 2715 cc. in piston displacement known

After working as an apprentice in the shops and drawing office of the Pope Mfg. Co., Blufford, Conn., he became assistant superintendent, holding this position for two years and being transferred at the end of that time to the post of the foreman at the Hagerstown, Md., plant of the same organization where he also remained for two years. In 1907 he





# AIRPORTS AND AIRWAYS

## Dayton News

By Maxon C. Holm

Walter Lewis, pilot for the Johnson Airplane and Supply Company, who brought the Flier Club of St. Louis trophy back with him from the St. Louis gathering, arrived here on a new five-passenger Luscombe standard serial tomorrow this week.

"It's a beauty," Walter exclaimed in "Zany" Johnson on landing at the Johnson flying park. Lewis made the return trip from Lincoln, Neb., by way of Chicago where he stopped at his old friend, Maj. B. W. Schroeder, and got a passenger car to Dayton.

In a letter from B. Russell Shaw, executive vice chairman of the contest committee of the N.A.A., Capt. John A. Mearns was informed that all records made by him and Leah Oakley in the trophy trip are to stand as world marks.

Those records were upheld by the F.A.I. at a recent meeting in Paris when it was decided to place the achievements of Louisiane Redder and South of Sea Kings, in a different category. By this action the one-way transatlantic flight on May 23, 1923; the duration record of April 12-17, 1923, and the landing speed records over 2,000, 3,000 and 4,000 ft. per second, remain unchanged behind the names of Louisiane Mearns and Leah Oakley.

"I am glad to hear it," Louisiane Mearns remarked in his modest way after reading the letter.

The familiar roar of a Curtiss D-12 motor was heard over the city during the last several days as test pilots from McCook field put the new Curtiss pursuit ship through flight tests.

Except for minor modifications, this ship is an exact counterpart of the "streak of ground" highway in which Louisiane Mearns and Leah Oakley achieved their record. It is fast and smooth and easy to handle. Lieut. W. B. Brockway made the initial flight.

First tests with the Army's bearing balloons were held at Wilbur Wright field under supervision of the Lighter-than-Air section of the Engineering Division. The bag was let up 3,000 ft. then drove down for observations on the suspension ropes. A quarter-inch steel cable is used on the suspension and the bag is designed to go 10,000 ft. high without losing any of the original hydrogen supply.

The Dayton Chapter of the N.A.A. and the Dayton Chapter of Commerce gave voice to emphatic protests against the action of the House Appropriations Committee in striking out the Post Office Department request for air mail funds. The House, at Washington, D.C., on January 22, 1924, by a vote of 219 to 197, rejected the bill. The House of Representatives, under Frederick B. Patterson, president of the N.A.A. and Walter B. Moore, chamber assistant, who is in the city in his private way to bring about no appropriation of funds for the air mail service.

Amateur and professional artists of Dayton have been asked to submit a poster and cover design for programs to be shown with 1924 Pulitzer prize here Oct. 2, 3 and 4.

A cash prize of \$100 has been offered for the winning design. Entries are to be finished in three weeks in addition to the background, and be presented on a card 18 by 24 in. The contest closes March 1.

Maj. L. W. McIntosh, commandant of McCook field and officer in charge of the Engineering Division; Maj. E. L. Hoffman, head of the equipment section; and E. T. Jones, of the personnel section, are working in Washington of the National Advisory Committee for Aeronautics.

Lieut. George E. Ballard, chief inspector of the aerodrome station, Wilbur Wright field, is on an extensive tour of air service depots in the East and Middle West. Capt. Henry Parsons, equipment officer at this station, flew to Thomas field, Louisville, Ky., with supplies recently.

Aeronautical studies in Dayton continue to keep with work being done in preparation for the second-day flight in May. The radio-aided flight of the Curtiss D-12, which has turned out 20 Liberty engines, "as good as new" for immediate installation and shipment all over the globe. Rudy Jones, navigation expert, spent several days at Langley field, Va., constructing the flight plan. Lieut. W. B. Brockway, Donald I. Brewer, of the electrical section, explained the work of aviation systems.

Maj. A. W. Roberts, commanding officer of the Intermediate Air Depot, Wilbur Wright field, has been appointed supply officer and advance man in the United States for the district. He assumed this position when Capt. E. E. Adler, chief of the transportation section, went to Walter Reed hospital, Washington, suffering from a serious ailment.

## Monmouth News

By Ralph B. Estley

The entire board of directors of the Mid-West Airplane Corporation was re-elected at a recent stockholders meeting held at the headquarters of the corporation in Chicago. The activities for the year was presented, which showed the receipts for the flying season to be \$4,300, which more than paid the operating expenses of the field and enabled the corporation to make payments on a number of old bills.

The directors re-elected were Charles E. Smith, mayor of Monmouth; C. G. Jenks, F. R. Peitke, E. P. Field, Thomas Bennett, C. W. Hamilton and J. P. Davis. The directors set a few days later and the following officers were elected: J. P. Davis; Vice President—F. R. Peitke; Secretary—Thomas Bennett—C. W. Hamilton, Attorney—E. P. Field; General Manager—C. G. Jenks; Pilot Manager—John Livingston. Following the operations of a successful drive for additional working capital, a new hangar was erected at the field. The new hangar is located 90 ft. north of the first. Adequate workshop facilities are provided in the frame structure.

The report included the time in the air and the miles flown and the number of passengers carried by Pilot Livingston during the flying season in the three ships belonging to the corporation. The total flying time was 180 hr. 9 min. for a total of 13,915 mi. Landings with passengers were 215, while 381 landings were made with students. The total number of passengers carried were 571. Not a forced landing was made during the season.

Preparations are being made to take care of long distance business, such as carrying news pictures of sporting events, a large amount of which was lost last year on account of lack of suitable equipment.

A frequent visitor at the Monmouth field last year was E. M. Laird of Wichita, Kans., who made frequent business trips to Chicago to his Laird Aviation. Finally all partying from Chicago to Knoxville City field is making the trip less tiresome in stop off at Monmouth for a short time to rest up and tune up their planes. Monmouth being about 200 miles from Chicago and 250 from Kansas City.

Leo Kavin of Chicago, who disappeared early in December from that city after having obtained \$50,000-700 through a cleverly conducted ad campaign, is believed to have been the man who accepted to hire Pilot Livingston to fly to Hartford, Conn. Pilot Livingston is making the party by telephoning him from Chicago would not give his name and

the trip sounded suspicious to the local pilot. Kavin later saved a place for the trip in Chicago.

During the coldest cold spell which prevailed in Illinois during January, Pilot Livingston of the Mid-West Airplane made a trip to Rockford, Ill., where he staged an altitude flight test for a gas and an company of that city. Livingston flew his own J-14 on the flight, obtaining an altitude of 11,200 ft., while the temperature was 25 below zero. The flight was made on a test of the cold weather flying qualities of the all company's products.

The first man to recover his hearing by the use of the airplane, A. B. Harris of Chicago, was in Monmouth recently and visited the local field. Mr. Harris is an aviator and lost his hearing during the 1914-15 War. After returning to Chicago he received advice from Dr. Ferguson, an otolaryngologist flying advocate, who recommended that Mr. Harris take an altitude flight in the hope of restoring his hearing. After ascending 11,000 ft. he recovered his hearing and was able to hear again. Mr. Harris is now able to make trips every two weeks into high altitudes in order to improve his hearing, which has been weakened after a short period on the ground.

Cross country runs on their way to Kansas City, Omaha, or to Chicago are invited to make use of the Monmouth field, which is large enough to land most any ship. The field is located at the intersection of and is open 12 months of the year. It is located just about 200 mi. west of Chicago on the Burlington railroad and furnishes the most convenient stopping point for long distance trips. Hard roads, telephone, gas, and water supply are at the disposal of the ship. The field is shared by Captain Shewett, of the Air Service, who was here a year ago taking aerial photos, to be one of the best commercial fields in the country. The field is also located on a direct line between Minneapolis and St. Paul and St. Louis, and from there the Northern route will find the field useful, in the next field is 75 mi. north of Rock Island.

## Chicago News

By One Kite

The accidental disappearance of Jack Hower of Minneapolis and Jack Ochs, of Cheshamford field, who in a direct new storm set out in a Jumbo a week ago to fly from Cheshamford to Ashland, Ind., caused his business and other affairs to be in a state of confusion. Immediately after leaving Cheshamford field, the firm last night of the north and after flying for a considerable time over new covered country with all landmarks obliterated, they suddenly found themselves in the hands of the Illinois W. when they were discovered they had left their terminal shoreward, hoping to reach a good landing place before their limited gas supply would give out. They finally landed near a farmhouse some miles in Indiana, where they remained over night.

David Debevoise is at present building a light two-seater monoplane to be powered with a 65 hp. air cooled motor. Details are not yet known.

The impending passage of the Wheeler bill is creating a great deal of discussion in Chicago aviation circles. The general opinion is that through the bill the well-known power vested in the secretary of commerce, legislation may be put to force that will hamper the small ship and builder. The Chicago Chapter of the N.A.A. has provided all of its members with a copy of the bill and special meeting was held at the Hutton Club at which the bill was thoroughly discussed. The Aviation Club of Chicago will also call a special meeting shortly for the same purpose.

## Importance of Safety Code

Legislation providing for an aeronautical safety code, which is held to be essential to the development of commercial aviation, is recommended in a statement issued on Feb. 9 by the Transportation Department of the Chamber of Commerce of the United States.

"Such legislation," the bulletin states, "will do more than

anything else for the encouragement of aeronautics. The United States is the only country of any importance which does not have an aeronautical safety code. Canada has a complete code patterned after the International Convention on Aerial Navigation, and at present United States Elms are permitted in Canada only through international treaties, and then only after a certificate of inspection has been issued by our Army or Navy.

The necessity to become derived from the expediting of the delivery of mail by airplane is emphasized in the bulletin. "From the standpoint of the banker," it continues, "lending money with interest payments in one form or another, and any reduction in the time in transit of collections and other security items will benefit business by saving down the amount of capital required to carry accounts, or by making loans at a lower rate of interest."

"The National Chamber," the bulletin states in conclusion, "stands for the enactment of suitable enabling legislation by Congress to govern the flight of aircraft and the airways over which they fly, and for an encouraging aviation; the development of new services to commerce and as an important means of defense. Over this, the designation of air routes and the assignment of air terminals will naturally follow. Such regulations will not only make for greater safety in flying but also eliminate the unsympathetic element, but shall lead to stimulate commercial aeronautics in all its phases."

## Denver Lays Plans for 1925

According to the N.A.A. Review, aeronautical circles in Denver, Colo. are making preparations to secure the International Air Show for 1925. Notice that the Colorado metropolitan is a prospective bidder for the event is given in a recent article in the Denver Post, which made it part as follows:

"The idea of celebrating the fiftieth of the Moffat Tunnel by a great exposition has met with the warmest approval of the people of the entire Rocky Mountain region. Hundreds of letters are being received daily, many of them containing valuable suggestions as to the form the exposition should take. The idea is a great one, and it is hoped that during the exposition this city would be the flying center of the world; all flying lines and routes would center in Denver. All the world's airships would be here."

While the plans of the 1925 mass has not yet been drafted up by the N.A.A., it will be remembered that at the St. Louis meet the directors of the Aero Club of Minneapolis had been in the city of the 1925 air meet should they be unable to obtain them for 1924.

## Elmas Bomber to be Tested

The first of the new Elmas bombers which the builders say will be capable of a one-stop flight from Chicago to New York city carrying enough bombs to blow up the largest battleship, is being assembled at McCook field.

Two of these bombers will be built with five machine guns which have no watered "blind" spot, have been ordered by General Feltner, chief of the Army Air Bureau, for experimental work.

It is commonly by the Engineering Division, they will be given thorough ground and service trials. This is expected to take several weeks.

The machines were built by G. Elmas and Bm. Inc., of Buffalo, N. Y., and said by the manufacturers to be able to make circles, fly straight and come down at a slower speed than anything in their class.

The Elmas bomber is propelled by two 450 hp. Liberty motors which are located in the fuselage. It is designed to carry a load of 9,000 lb. at an altitude of 13,500 ft. The rated maximum speed is 105 mi./hr. and 65 mi./hr. with full load.

## N.A.A. Mission to South America

Godfrey L. Cabot of Boston, president-elect of the N.A.A., will shortly visit Brazil, Uruguay, Argentina and Chile as an unofficial representative of the Aero Club of Minneapolis in the mission to secure the 1925 air meet which will be held in those countries upon aeronautical matters.









## Speeding the Wheels of Commerce

IT IS to commerce that the most practical good will accrue to this country through the development of the aviation industry. When commercial air routes criss-cross the continent, increased prosperity will follow; just as prosperity always has followed the advent of faster and safe transportation.

As one of the means of development, aviation meets, such as was staged at St. Louis, have the same value to the aviation industry that automobile races have to the automobile industry. These races offer conclusive proof of the value of various improvements or discoveries; for, if a new kind of propeller, for instance, will stand the strain of pulling a ship at the tremendous speed of four miles a minute and more, it will certainly

stand up under the strains incurred during ordinary commercial flying. Already there are a number of companies operating air routes in various parts of this country and the success which they have met would indicate that business men regard them as useful and safe means for shipping and traveling.

One of the pioneers in this business was the Aero Marine Company, which operates four ships on regular schedules between Cleveland, Ohio, and Detroit, Michigan. This Company is proving that safe, regular passenger and express service is possible and profitable by air, and the Standard Oil Company (Indiana) takes great pride in the fact that its aviation products are helping them to do it.

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have been used for the last year by the Aero-Marine Company in all of its ships on this route. These products were selected on the basis of merit, and, of course, have given the best of satisfaction. Not a bit of trouble traceable to the oil or gasoline has been encountered.

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gether with the service which makes them available throughout the middle west, are the contribution of the Standard Oil Company (Indiana) to the endeavor to make "America First in the Air." They are the best products, for the purpose, which this company, one of the largest refiners of crude oil in the world, can produce.

The official guide of the United States Traveling Information Bureau, which is now on sale at all Standard Oil Company (Indiana) service stations, contains a complete air map may be supplied by the National Aeronautics Association of the U. S. A., together with a list of landing fields or airports. Stanolind Aviation Gasoline and Stanolind Aero Oil may be had there; these points are also listed in our booklet, "Plane Facts," a copy of which will be sent to you free, on request.

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